DETERMINING AND USING ACOUSTIC CONFUSABILITY, ACOUSTIC PERPLEXITY AND SYNTHETIC ACOUSTIC WORD ERROR RATE

Abstract of the Disclosure

5   Two statistics are disclosed for determining the quality of language models. These statistics are called acoustic perplexity and the synthetic acoustic word error rate (SAWER), and they depend upon methods for computing the acoustic confusability of words. It is possible to substitute models of acoustic data in place of real acoustic data in order to determine acoustic confusability. An evaluation model is created,

10   a synthesizer model is created, and a matrix is determined from the evaluation and synthesizer models. Each of the evaluation and synthesizer models is a hidden Markov model. Once the matrix is determined, a confusability calculation may be performed. Different methods are used to determine synthetic likelihoods. The confusability may be normalized and smoothed and methods are disclosed that increase the speed of

15   performing the matrix inversion and the confusability calculation. A method for caching and reusing computations for similar words is disclosed. Acoustic perplexity and SAWER are determined and applied.